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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,809	08/03/2001	Michael L. Perry	C-2462	8358
7590		12/04/2003	EXAMINER	
M. P. Williams		CREPEAU, JONATHAN		
210 Main Street		ART UNIT		
Manchester, CT 06040		PAPER NUMBER		

1746

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/921,809

Applicant(s)

PERRY ET AL.

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by McElroy (U.S. Patent 6,251,534). Regarding claim 1, the reference is directed to a fuel cell cascade flow system (see abstract). As shown in Figure 1, the system contains a first group of cells (200) and a second group of cells (300). However, the reference teaches in column 7, lines 18-30 that the invention is not limited to systems having only two cascaded groups (stacks) and that a plurality of stacks may be used. Thus, the recitation of three groups in claims 1 and 2 is anticipated by the reference. The reference further teaches that the number of fuel cells in each stack may be adjusted according to the desired power output of the system (col. 6, line 66 et seq.). This is anticipatory of the limitation in claim 1 that the number of fuel cells in each group exceeds the number of fuel cells in any group downstream thereof. Regarding claim 1, the system comprises fuel inlet and outlet means (valves) which are settable in two conditions (see Fig. 1; col. 6, lines 8-50). Regarding claims 1 and 3, the first condition is a normal "series" flow where the fuel must flow through each stack and the second condition is a "parallel" ("purge") flow where the

fuel flows through each stack individually without passing through any other stacks. Regarding claim 3, the conditions are set by a controller (530). Regarding claim 1, the fuel is supplied from a source (405). Regarding claim 6, the system comprises fuel inlet manifolds (202, 302) and fuel exhaust manifolds (204, 304), the fuel inlet means (500) being disposed between the fuel source and the inlet manifold, and the fuel outlet means (510, 520) being disposed between the exhaust manifold and the system exhaust. Regarding claim 5, the fuel outlet means includes a valve (510) between the exhaust and the last group and a valve (520) between the exhaust and the first and second groups.

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over McElroy in view of Chen et al (U.S. Patent 5,985,474).

McElroy is applied for the reasons stated above. In addition, the reference teaches that the fuel inlet means comprises a blower (420) between the source (405) and the first stack (200) and a valve (500) between the source and the second (and third) stacks (see col. 6, line 21).

However, McElroy does not expressly teach that a *valve*, rather than a blower, is disposed between the source and the first stack, as recited in claim 4.

The patent of Chen et al. is directed to a fuel cell system. In column 8, line 23, the reference teaches that “[i]n addition, it will be appreciated that instead of valves, variable speed pumps and/or blowers may also be suitable for regulation of system 100, e.g., for controlling the flow of air, fuel and reformat.”

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of Chen et al. indicates that valves are functionally equivalent to blowers for controlling the movement of gases through a fuel cell system. Therefore, the artisan would be sufficiently skilled to replace the blower of McElroy with a valve. An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982); MPEP §2144.06.

Allowable Subject Matter

5. Claims 7-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Claim 7 recites, among other features, that the fuel inlet means and fuel outlet means are disposed within the fuel inlet and exhaust manifolds, respectively. The closest prior art to this

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subject matter is McElroy, which teaches that the inlet and outlet means are disposed outside of the manifolds. However, the reference does not teach or fairly suggest that the inlet and outlet means are disposed *within* the manifolds, as recited in instant claim 7. It is noted that the “fuel inlet means” and “fuel outlet means” of claim 7 are considered to invoke 35 USC §112, sixth paragraph, pursuant to MPEP §2181. The disclosure of Hauer (U.S. Patent 6,534,209) is also relevant to the claimed subject matter, but this reference also does not teach or fairly suggest the claimed manifold structure as recited in claim 7. Accordingly, claim 7 contains allowable subject matter.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051 (prior to December 17, 2003) or (571) 272-1299 (after December 17, 2003). The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

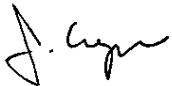
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (703) 308-4333. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 872-9310 (for non-final communications) or (703) 872-9311 (for after-final communications).

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Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jonathan Crepeau
Patent Examiner
Art Unit 1746
November 30, 2003